

FOLIO

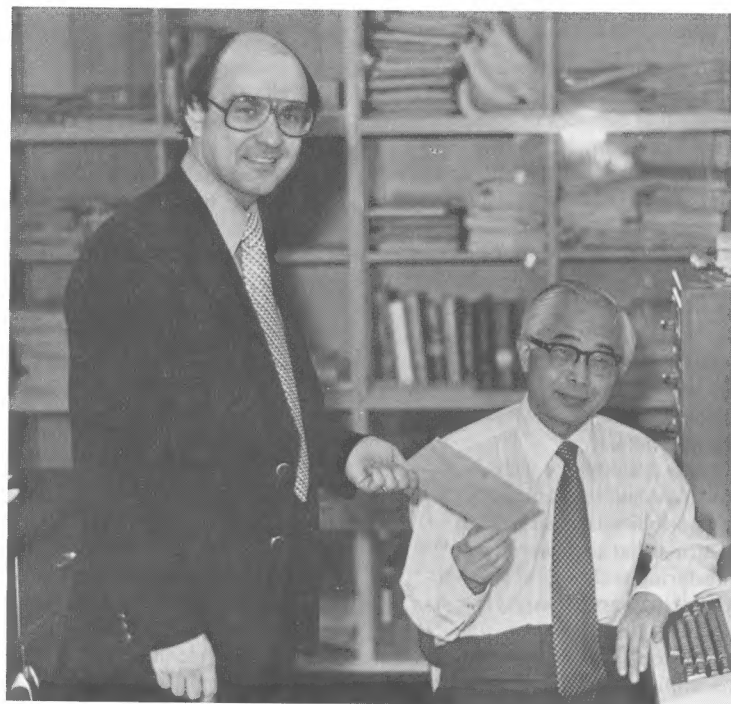
One Millionth User

The following article was prepared by T. Butler of Computing Services and originally appeared in the Computing Services Bulletin.

Computing Services' one millionth user is Dr. S. Huzinaga of the Department of Chemistry. A batch job he ran on the first weekend in March was the one-millionth job run under MTS in the 1978-1979 fiscal year. His prize (an account MEGA with a million milliseconds of CPU time and a million bytes of disk space) was awarded by Computing Services Director, Dr. Dale Bent.

Dr. Huzinaga had seen the announcement of the contest in an issue of the *Bulletin*, but was completely unaware that the event was so near at hand. He was surprised to win, and even more amazed at the huge quantity of processing done here at The University of Alberta. Dr. Huzinaga remembers the pioneering days of computing, when today's speed and convenience were unthought of. He admits he is still behind the times; old habits die hard, and he jokes about the "terminal disease" which is so prevalent. But he proudly points to a DEC-writer in his office, and says he is getting the hang of it.

Dr. Huzinaga was prompted by the award to recall an interesting personal experience. He was working at the University of Chicago then, and was an associate of Dr. Fraga, the current Chemistry representative on CFPC. The Chicago group was doing some of the first work in computer applications in chemistry. But progress was slow on the University of Chicago's IBM



Dr. Huzinaga opens his prize awarded by Dr. Bent of Computing Services.

650; so they sought permission to use a more powerful machine, located at Wright-Patterson Air Force Base in Dayton, Ohio. Permission was granted, but because none of the academics were American citizens, their access to the military installation was strictly guarded. Dr. Huzinaga remembers the trip to and from the computer room under military police escort, and that he could not leave the area even to go to the refreshments section. But what impressed him was that the Americans *did* allow them access to the machine.

Dr. Huzinaga's field is computer chemistry. He explains that in chemistry the basic theory is established: "the master equation for chemistry has been solved." What remains is elaboration,

usually done by experimentation. But experiments have some real-life restrictions; the purity of the reagents is never 100 percent, and our physical situation imposes unwanted conditions of pressure, gravity, and motion. Also, some interesting experiments can be done only at hazard to the scientist. The computer chemist creates a simulation of the geometries of the elements involved, brings them together, and then reads the results of the "perfect" experiment in safety from a computer print out.

MEGA and AMEG

Dr. Huzinaga did not see the signon message:

MILLIONTH JOB COMING THIS WEEKEND. GOOD LUCK!
(continued on page two)

Imperial Oil Grants

The research projects of ten members of the University were enhanced on 23 April by Imperial Oil Ltd. and Esso Resources. At a special meeting at the Faculty Club, Alex Budge, Marketing Manager, Prairie Region, Imperial Oil Ltd., presented grants totalling \$46,050 to the researchers who will either continue or commence work on the projects in the coming year.

The distribution of the grants package is as follows: \$3,200 to M.E. Evans for magnetostratigraphy of cretaceous coal-bearing strata of Alberta; \$6,000 to F. Hron for numerical modelling of seismic waves in structurally complicated media; \$5,000 to E.R. Kanasewich for the application of shear waves in geophysical exploration; \$6,000 to J.F. Lerbekmo for research analysis of the depositional environments of the Viking Formation in Central Alberta; \$5,000 to F.W. Jones for topographic and anisotropic effects on heat flow from geothermal sources; \$3,350 to B. Stimpson for the design of pillars in hard rock masses; \$5,500 to T.E. Daniel and H.M. Goldberg for the development of an integrated supply and demand model of Canadian energy resources; \$6,000 to D.G. Fisher for the application of adaptive computer control techniques; and \$6,000 to H.J.J. Sequin for solar-hydrogen energy conversion.

The projects of Drs. Daniel, Goldberg and Sequin are new projects; all the other projects are of the renewal variety.

President Gunning said that research funds, always hard to come by, form an important part
(continued on page two)

Millionth User

(continued from page one)

which appeared 28 February and 1 March. Some others *did* see it and responded.

A group of Computing Science students (graduates and undergraduates) decided that the best way to win a computer contest was by using a computer. So on Thursday morning they wrote a program for two minicomputers in the Department of Computing Science. The computers already had a link to MTS, so it was a relatively easy affair to get them to generate:

```
$$SIGNON XXXX SIGFILE==  
OFF S  
PASSWORD  
%DON'T  
$$SIG $
```

The device command %DON'T keeps the line open for another signon.

The plan was to use these computers to generate signons to the MTS system. The students conferred with Computing Services staff to make sure this activity would not interfere with other users' work. We also had to admit that what they were planning wasn't against the rules (because we didn't have any rules). Nine Computing Science students entered the "lottery" by

allowing their ID's to be used for signing on. From 9 a.m. Thursday to shut down at 4 a.m. Friday morning, they generated signons at the rate of one every 1.9 seconds. Each signon cost less than 2c; the prize was \$300 of computing funds. Their chances of winning were in the 90 to 95 percent range: our usual load for an evening is less than 1,000 jobs; that evening they generated 13,000 plus.

While the program was running, the students checked with Computing Services to ensure there was no impact on the system. Other than overflowing our statistics file, no effects were noticed.

First thing Friday morning our Operations group determined that (as far as number of jobs went) the "weekend" was past, and the millionth job had been run. The winner was Murray Campbell, an undergraduate student in Computing Science.

Quite frankly, we were in a bind. We had to admire the responsibility they showed in ensuring that they were not interfering with any other users. And using another computer to beat ours had a kind of ironic charm to it. But we had hoped the millionth job prize would go to some user in the midst of his everyday business; after all, that's how we got to one million jobs a year. So we decided to award Murray with another, equal prize of 350 pages disk space and \$300 computing funds. We then subtracted the 13,000 signons they generated, and continued the MEGA contest as normal.

Murray received his ID (AMEG) and password with due pomp and circumstance. His good fortune was just beginning with this windfall; later in March he received notice that he had received a National Research Council Scholarship for \$7,000 tenable at The University of Alberta.

Murray reported that there was no firm deal about having to share the winnings with his cohorts, but we got the feeling he wasn't going to be stingy. But it was a joint venture, and at Murray's request we will im-

mortalize the 'Gang of Nine' who risked about \$8 each on the only sure-fire winning game in town.

They are:

BOUL	Danny Boulet
MCAM	Murray Campbell
CORC	Terry Crocker
CYAR	Chris Gray
NUTS	Ruth Paranall
WGDM	Dave Melenka
MURR	Murray Reid
UNIX	Steve Sutphen
QBHL	Scott Thornton

Danny Boulet was the brains behind the caper, which included the sophistication of having *their* computer run a task that caught and restarted the program if *our* computer lost track of it. Thanks a lot, Danny.

Congratulations, then, to our *two* winners, and of course, to the other MTS users whose 999,999 jobs made it all possible. □

Grants

(continued from page one)

of one of the major functions of the University. "Canada is among the lowest spenders on research funds, so the welcome news that Imperial Oil and Esso Resources has presented \$46,000 for research indicates recognition by one of Canada's largest companies of the needs in this area," he stated.

The grants are part of a total of eight-seven research grants, totalling \$460,000, made to twenty-eight Canadian Universities by Imperial Oil Ltd. and its subsidiary companies.

The purpose of the grants program is to stimulate research and advance knowledge in the sciences associated with the oil industry.

It is Imperial Oil Ltd. policy that the selection of grant winners by the company's committee on higher education is made on a competitive basis. Grants are distributed among universities as equitably as possible and research topics and the potential significance of the results are of primary importance.

The grants program has been conducted by Imperial Oil Ltd. for the past twenty-five years.

General Faculties Council

A meeting of General Faculties Council will be held on Monday, 30 April 1979 at 2 p.m. in the Council Chamber, University Hall.

Agenda

1. Approval of the Agenda
2. Approval of the Minutes
3. Question Period
4. New Members of GFC

Reports

5. Executive Committee Reports
6. Report of the Board of Governors
7. Report of the Nominating Committee

New Business

8. University Professorships: Executive Committee Recommendations
9. Admission or Continued Enrolment of Students in Situations of Danger
10. Academic Appeal Regulations: Proposed Amendment re Temporary Registration
11. Campus Development Committee: Annual Report 1978
12. Non-Academic Staff Representation on GFC: Proposals for Selection of Nominees

For Information

13. Proposed Amendments to The Universities Act: Letter from the Minister of Advanced Education and Manpower
14. Other Business

The University of Alberta Senate

The next plenary meeting of the Senate will be convened at 9:30 a.m., 27 April, in the Council Chamber, University Hall.

The agenda includes:

1. The Election of Public Members.
2. Announcement of those who will receive honorary degrees at the Spring Convocation.
3. Report on the disbursement of awards from the Emil Skarin Fund.
4. Presentation on the *Report of*

FOLIO

Volume Fifteen
Number Forty-two

All inquiries and correspondence should be directed to:

Folio
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423 Athabasca Hall
University of Alberta
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the Task Force on Children and Others with Learning Disabilities.

5. Presentation by the Faculty of Commerce

6. Report of the Ad Hoc Committee to Review the Grantham Report.

Advisor on Native Affairs to Resign

Family concerns have brought about the resignation of Marilyn Buffalo MacDonald. Mrs. MacDonald, the University's Advisor on Native Affairs since 1975, will terminate her position on 30 April. Married to geology consultant Frank MacDonald, she is the mother of three children and is expecting a fourth.

Mrs. MacDonald has no qualms about leaving, particularly in view of the fact that the Office of the Advisor on Native Affairs is a permanent part of the University and is well established in the native community.

In commenting on Mrs. MacDonald's decision, Willard Allen, Associate Vice-President (Academic) noted that native students have a much higher profile on campus and that the University has a much higher profile in the native community. She made the office what it is and deserves a good deal of credit, he said. During the years of Mrs. MacDonald's appointment, the number of native students on campus increased from seventeen to sixty-five. "We don't recruit that heavily which means that most of the students are coming here of their own accord. I feel they will be successful because they are not being pushed and are here because they want to be," she said.

Mrs. MacDonald was instrumental in the establishment of a native student orientation program, a tutoring program, and the Native Student Club.

The Office of the Advisor on Native Affairs was created on a trial basis in November, 1975, by the Board of Governors. In June, 1977, the Board declared the office a permanent part of the University's composition.

Mrs. MacDonald's successor



Three of the survivors of Art Burgess' early morning fitness class are pictured here with their instructor (centre) and the Chairman of Athletic Services, Ed Zemrau (left). For their "magnificent masochism" in enduring the matutinal chills of winter, and for their strict adherence to the precept "mens sana in corpore sano," Myer Horowitz, Jean Pocock, and Bill Preshing were enrolled with others of frosty foresight in the Illustrious Order of the Frigid Icicle. Here they proudly display their awards for glacial gallantry.

will not be appointed for some time as the position will be advertised locally and nationally. □

Bicycle Theft

The experience of the Campus Security staff in the springtime of previous years has made them aware that bicycles are particularly prone to theft during this season. Campus Security would like to remind the University community of this potential threat and urge everyone to take the precautionary action of properly securing their bicycles.

As well as properly locking their bicycles, people are encouraged to observe other precautions as well. Bicycle owners can sometimes arrange among themselves to keep an eye on their bicycles over a period

of time, and Campus Security also cooperates with the Edmonton City Police Department in its crime prevention program. They will record serial numbers and descriptions of bicycles to assist in the recovery of stolen bicycles.

Members of the University community are also to be reminded that thefts of wallets and purses still appear common, and these thefts are frequently the result of leaving desks, jackets, and purses unattended, thus providing the opportunity for sneak thieves to attack the premises. It should also be remembered that Campus Security operates a Lost and Found Service, and they often have items, particularly eyeglasses, that have been turned into them. Anyone losing an item would be well advised to check with Campus Security. □

Spring Fitness Programs

For those people who think that Spring is a better season for achieving physical fitness than Winter, the Department of Athletic Services is offering a number of Spring programs. The programs will start in the week of 30 April, coincidental with the change to summer hours. As well as regular physical fitness classes, there is an expansion of previous programs through the addition of a number of clinics to help people design their own programs. Some of the clinics to be offered are Swim for Fitness, Safe Jogging—The First Steps, and Do It Yourself.

A number of special clinics are planned for people who would like to lose weight or who suffer from sedentary back pain. These clinics are for otherwise healthy people who would like to solve particular problems before launching their own fitness program.

For further information on cost and specific programs available at the Department of Athletic Services, telephone 432-3365 or 435-8984. □

Cricket Coach on Campus

Brian Taber, the coach of the Australian National Cricket Team, will be working from the Faculty of Physical Education during his six-week stay in Edmonton. Mr. Taber is here as part of a federally funded national pilot project which will introduce the game of cricket to twenty selected Edmonton Elementary and Junior High schools. Visits to the schools will be combined with a series of coaching workshops which will be aimed at training school teachers and parents in the fundamentals of the game. A similar workshop will be run on campus for Physical Education staff, students, and other interested people. For more information about the campus workshop contact Brian Taber, telephone 432-5801.

The complete cricket program is being coordinated by the campus-based Edmonton Junior Cricket Organization (EJCO). The EJCO was started five years ago by Dorian Smith of the Department of Geology and is now chaired by Iain Stuart, Professor of Theoretical Biology. The EJCO summer program, which begins on 5 May, will run in conjunction with the program of Brian Taber. The EJCO program will cater to the age groups of nine to eleven, twelve to fourteen, and fifteen to eighteen.

Anyone who would be prepared to help coach a junior team should contact the Coaching Coordinator, Geoff. Williams, telephone 432-2257. Those people who would prefer to be involved as a team manager should contact Dick d'Alquen, telephone 432-3538. Anyone interested in registering as a junior player in any of the age groups should contact the EJCO Registrar as soon as possible, telephone 452-0202. □

Library Hours/Spring Session, 1979

Commencing 25 April 1979. Variations from these hours are posted at the entrance of each service point.

	Monday-Thursday	Friday	Saturday	Sunday
Cameron Library				
Building open	7:45 a.m.-10:00 p.m.	7:45 a.m.- 5:30 p.m.	1:00 p.m.- 5:00 p.m.	Closed
Building open until 2 May	7:45 a.m.- 2:00 a.m.	7:45 a.m.- 2:00 a.m.	9:00 a.m.- 2:00 a.m.	9:00 a.m.- 2:00 a.m.
Circulation Services	8:30 a.m.- 6:15 p.m.	8:30 a.m.- 5:15 p.m.	1:00 p.m.- 4:45 p.m.	Closed
Fines Collections 1 May	8:00 a.m.- 4:00 p.m.	8:00 a.m.- 4:00 p.m.	Closed	Closed
General Sciences	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	No service	Closed
Government Publications	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	Closed	Closed
Interlibrary Loans	8:30 a.m.- 4:30 p.m.	8:30 a.m.- 4:30 p.m.	Closed	Closed
Medical Sciences	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	No service	Closed
Micromaterials	8:30 a.m.- 4:30 p.m.	8:30 a.m.- 4:30 p.m.	Closed	Closed
Photoduplication 1 May	8:00 a.m.-12:00 noon	8:00 a.m.-12:00 noon	Closed	Closed
	1:00 p.m.- 4:00 p.m.	1:00 p.m.- 4:00 p.m.	Closed	Closed
Reserve Reading Room*	9:00 a.m.- 5:00 p.m.	9:00 a.m.- 5:00 p.m.	Closed	Closed
Undergraduate	8:30 a.m.- 4:30 p.m.	8:30 a.m.- 4:30 p.m.	Closed	Closed
Special Collections*	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	No service	Closed
Education Library				
Building open	8:30 a.m.- 9:00 p.m.	8:30 a.m.- 6:00 p.m.	1:00 p.m.- 5:00 p.m.	1:00 p.m.- 5:00 p.m.
Circulation Services	8:30 a.m.- 8:45 p.m.	8:30 a.m.- 5:45 p.m.	1:00 p.m.- 4:45 p.m.	1:00 p.m.- 4:45 p.m.
Reference Services	8:30 a.m.- 9:00 p.m.	8:30 a.m.- 6:00 p.m.	1:00 p.m.- 5:00 p.m.	1:00 p.m.- 5:00 p.m.
Reserve Room	8:30 a.m.- 8:45 p.m.	8:30 a.m.- 5:45 p.m.	1:00 p.m.- 4:45 p.m.	1:00 p.m.- 4:45 p.m.
Curriculum Library	8:30 a.m.- 9:00 p.m.	8:30 a.m.- 6:00 p.m.	1:00 p.m.- 5:00 p.m.	1:00 p.m.- 5:00 p.m.
Law Library	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	Closed	Closed
Mathematics Library	8:30 a.m.-12:00 noon	8:30 a.m.-12:00 noon	Closed	Closed
	1:00 p.m.- 4:30 p.m.	1:00 p.m.- 4:30 p.m.		
Physical Sciences Library	8:30 a.m.-12:00 noon	8:30 a.m.-12:00 noon	Closed	Closed
	1:00 p.m.- 4:30 p.m.	1:00 p.m.- 4:30 p.m.		
Rutherford Library				
Building open	7:45 a.m.-10:00 p.m.	7:45 a.m.- 5:30 p.m.	1:00 p.m.- 5:00 p.m.	Closed
Circulation Services	8:30 a.m.- 6:15 p.m.	8:30 a.m.- 5:15 p.m.	1:00 p.m.- 4:45 p.m.	Closed
Periodicals Reading Room	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	Closed	Closed
Reference Services	8:30 a.m.- 5:00 p.m.	8:30 a.m.- 5:00 p.m.	No service	Closed
Rutherford South Study Hall	Closed	Closed	Closed	Closed
John W. Scott Library	9:00 a.m.-10:00 p.m.	9:00 a.m.-10:00 p.m.	9:00 a.m.- 5:00 p.m.	Closed
Computing Science 28 April	9:00 a.m.-12:00 noon	9:00 a.m.-12:00 noon	Closed	Closed
Reading Room	1:00 p.m.- 4:30 p.m.	1:00 p.m.- 4:30 p.m.		

* Closed 26 April - 6 May



75th Anniversary Celebrations

From July 1982 to June 1983, The University of Alberta will hold its 75th academic session. This is a Jubilee which will be celebrated throughout the year by a variety of special events and projects. The organizers of the celebrations, therefore, require your participation in planning projects or events which will portray all aspects of the life of this University past and present in a wide range of academic, cultural and artistic, and sporting endeavors.

All your ideas and suggestions are welcome and will receive full consideration, subject to the availability of funds. In fact, the success of the celebrations is dependent on you.

Please submit your ideas for the celebrations to:

Dr. W.A. Presling, Chairman,
75th Anniversary Policy Group,
420 Athabasca Hall,
The University of Alberta,
Edmonton, Alberta,
T6G 2E8,

(telephone: 403-432-2325)



Cheryl Hume, former President of the Students' Union, has been awarded a Commonwealth Scholarship and will undertake studies at Balliol College, Oxford, in the coming academic year.

Erratum

According to an article in the 19 April *Folio*, Mrs. Antonine Maillet and Father Arthur Lacerte will be conferred honorary Doctor of Letters Degrees at Faculté Saint-Jean's Special Convocation on 4 May. The degree designation is incorrect and should have read Doctor of Laws Degrees.

Elizabeth L. Empey Lectureship

In honour of Dr. Elizabeth L. Empey who retired from the University on 30 June 1978, the Faculty of Home Economics has established The Elizabeth L. Empey Lectureship in Home Economics. This will commemorate her many contributions to The University of Alberta and the profession of Home Economics.

It is planned that an outstanding speaker will be invited each year to speak at a public lecture on a topic related to the discipline of Home Economics.

Contributions should be payable to The University of Alberta and sent to:

Mr. L. Howell,
Special Funds,
Comptroller's Office,
University of Alberta
Edmonton, Alberta T6G 2M7

Contributions to the fund sent to the above address should be designated as being for The Elizabeth L. Empey Lectureship in Home Economics. Such contributions are income tax deductible, and an official receipt from The University of Alberta will be sent to each donor. □

research reporter

The Research Reporter, primarily designed to attract the interest of persons in the commercial communications media, is included in Folio on a monthly basis because of the interest shown by the University community in its brief reports. Short descriptions of research—any kind of research—should be sent to Research Reporter, Office of Community Relations, 423 Athabasca Hall. All reports are checked with those concerned prior to being printed.

University Immunologists Study Placenta

The following story was recently prepared and circulated to most United States newspapers having a circulation of more than 25,000 and to medical and scientific periodicals by the Federation of American Societies for Experimental Biology. It highlights research centred at The University of Alberta.

The placenta is a marvelous evolutionary adaptation. It is the means by which the growing fetus is nourished. It acts as a screen through which many harmful substances cannot pass. And, according to some new research evidence, it may also protect the fetus from rejection by the mother's body.

The fetus can be looked at as an eminently successful tissue graft. It contains foreign elements from the father and yet it is not rejected by the mother. The reason for the fetus's success may lie in its placenta, according to Canadian immunologists Thomas G. Wegmann, Bagirath Singh, and George A. Carlson. Their recent experiments, published in the January, 1979, issue of *The Journal of Immunology*, indicate that the placenta absorbs and neutralizes maternal antibodies directed against paternal antigens

in the fetus.

Drs. Wegmann and Singh conduct their work at the University of Alberta in Edmonton. Dr. Carlson is a scholar of the National Cancer Institute of Canada. Both Drs. Wegmann and Carlson are members of The American Association of Immunologists, part of the Federation of American Societies for Experimental Biology.

Histocompatibility antigens are special proteins thought to be located on cell surfaces. One of their functions is to define "self" and "non-self." In other words, these antigens allow the organism to recognize which cells are its own and which are foreign. Thus, histocompatibility antigens are involved in tissue graft rejections. When the organism sees antigens which are "non-self," such as those found on a transplanted organ, it mobilizes its immune defenses to attack the foreign invaders.

The fetus contains histocompatibility antigens from its father. In the normal course of immunologic events the mother's body should identify those antigens as foreign—"non-self"—and send antibodies to attack the invading cells. Something happens, however, to intervene between attacking maternal antibodies and growing fetus. Thus, the protected fetus becomes a successful tissue graft in its mother's body.

Scientists suspect, quite naturally, that the key to fetal protection lies in the placenta since it forms a cellular barrier between maternal and fetal circulations. The Canadian researchers hypothesized that the placenta contains antigens from the father in a form which can harmlessly absorb maternal antibodies directed against the fetus.

Dr. Wegmann and co-workers tested the hypothesis by injecting a special radioactively labelled antibody into the bloodstream of pregnant laboratory mice and then measuring the amount of this antibody into the bloodstream of injected antibody is one which normally attacks the major histocompatibility antigens of these animals. The radioactive label was used so the scientists could follow

the antibody through the mouse and detect its presence in various tissues with instruments designed to measure radioactivity.

The researchers found that when the fetus bears the type of antigen against which the injected antibody would normally be directed, the placenta absorbs that antibody. No such increased antibody levels were found in the livers, spleens, kidneys, or lungs of the pregnant mice.

The scientists also found that the placenta continues to absorb antibody even when the fetus is surgically removed. Apparently, absorption can occur without fetal circulation.

Dr. Wegmann and his colleagues concluded that "the placenta differentially absorbs the antibody when the fetus bears the target antigen, and thus may serve as a paternal antigen immuno-absorbent for neutralizing maternal antibody directed against the fetus."

Research such as this may eventually provide the key for preventing graft rejection. Clinicians may one day be able to control the body's immune system, stimulating its activity to fight diseases such as cancer, and suppressing its function in the face of autoimmune diseases and organ transplants.

Research Into Tooth Development has Interesting Context

If a crab should lose a claw, a new one will grow into place. If a salamander should have its tail severed, a perfectly good replacement will develop. Is it not then conceivable that the human body could be made to regenerate lost or damaged parts? Dr. J.W. Osborn thinks so.

Certainly such medical wizardry is not even remotely within sight, but a century from now medical science could conceivably be advanced to that point, says Dr. Osborn. A Professor in the Faculty of Dentistry at The University of Alberta, he is seeking a better understanding of how teeth develop.

Says Dr. Osborn, for a number of reasons a tooth lends itself

particularly well to a study of how a body part develops. For one thing, an excellent fossil record exists, documenting the changes in shape which teeth have undergone—and therefore the changes in the factors which control development—during the past 500 million years. Also, although teeth are relatively simple, comprising only dentin and enamel, they develop in the same manner as more complicated body parts. And they grow into a perfectly characteristic shape—from a room full of different teeth, someone like Dr. Osborn could identify all the human teeth and the original position of each in the jaw.

For a tooth, as for a more complicated body part such as a limb, there are three aspects to development. First, the cells in an embryo must become different from each other—in the case of an arm some become cells which develop bone, others develop muscle, and so on. These cell changes must take place in the proper pattern—the finger bones in the proper place at the end of the arm, etc. Finally, the various elements, arranged in the correct pattern, must grow into the proper shape—giving a perfectly formed arm, tooth or whatever.

Dr. Osborn says that the first aspect of development, the study of the ways in which cells become different, is the most studied of the three. For the past decade, he has been examining pattern formation, and he is now beginning to investigate the growth into shape, which he says is the least studied aspect of development. The perfection with which each tooth grows into its characteristic shape makes the tooth a natural subject for such investigations.

Dr. Osborn describes his research project as a "simple data study"—it promises to be lengthy and awkward but not complex. He will be observing the growth into shape of the teeth of laboratory mice and taking careful note of all that is taking place. He says that once enough data have been accumulated, attractive leads for further investigations may become evident. The

data may even support a model of shape development which has been constructed.

And perhaps, someday in the future, researchers will be able to prise open the cellular locks which at present close the doors to regeneration of human body parts. It could begin with a tooth.

Zoologist Seeks Better Understanding of the Brain

Dr. R.E. Peter of The University of Alberta is attempting to identify the brain hormones which regulate the spawning of fish.

Besides having the potential to lead to practical applications—in fish hatcheries, in wildlife management, and so on—the study could be important to the understanding of the working of the brain in other animal life forms, including man.

In his studies Dr. Peter uses goldfish. Goldfish, like many other species of fish, reproduce in a manner governed by a seasonal cycle which involves the growth and regression of the sexual organs in response to environmental cues such as photoperiod—the amount of daylight—and temperature. Once the fish has developed to the point where reproduction is possible, the actual spawning awaits the right circumstances. Important is floating vegetation to which the fish eggs will stick. The female will ovulate when she perceives the appropriate place for her eggs and then entice a male ready to spawn into the vegetation. Both fish will then surface, the female releasing her eggs and the male fertilizing them as they are released.

A pituitary hormone known as gonadotropin when released into the bloodstream stimulates the growth of the fish's sexual organs, the ovaries or testes. Dr. Peter is investigating the patterns of secretion of gonadotropin and the areas of the brain and the brain hormones involved in regulating its secretion. In addition, he is curious as to how the factors of photoperiod and temperature feed into this system to influence the seasonal reproductive cycle.

Dr. Peter is also very much interested in isolating the inhibitor hormone which keeps the fish in a holding state once the fish is ready to spawn and prior to the conditions suitable for reproduction occurring.

Study Focuses on Breast Disease

A research team centred at the W.W. Cross Cancer Institute in Edmonton is currently involved in a study of breast disease in northern Alberta. While the prime focus of the study led by Senior Radiation Oncologists Drs. Patricia Burns and Alan Lees is breast cancer, breast disease of a benign nature is receiving due attention.

The Cross Cancer Institute has close ties to the Division of Oncology of the Faculty of Medicine at The University of Alberta, and University researchers are part of the team of doctors, nurses, and other medical scientists which is undertaking this important research.

The research is important for a number of reasons:—breast cancer is one of the leading causes of death in women;—a great many women suffer from benign—nonmalignant—breast disease;—current statistics show that, in North America, one woman in 13 will develop breast cancer;—the incidence of breast cancer is rising slightly; statistics show Alberta ranking in the top ten in regard to incidence of breast cancer; and—breast cancer presents itself differently in different geographic areas.

Results from Alberta research already completed confirm that the local disease has some unique characteristics. The study of Alberta women with breast disease, malignant or benign, and the comparison of them to the 'normal' population is leading to the emergence of a pattern identifying the women at risk in regard to breast cancer. It is hoped that when the current study is complete, the pattern will be sufficiently clear to be used for

a screening program.

Standardized data are currently being collected from patient files, computerized and stored for maintenance and analysis. Additional information is obtained from the Alberta Cancer Registry, one of the best in the world, which registers all Alberta cancer cases.

More than 90 percent of Alberta women who have breast cancer attend the Cross Cancer Institute either before or after initial treatment; there, all patients suffering benign or malignant disease are interviewed by one of two registered nurses. After, the patients are examined by one of two radiation oncologists specializing in breast disease and by one of the forty participating surgeons from northern Alberta.

The necessary diagnostic tests follow and the results of these, along with the consulting physician's recommendations, are sent to the patient's own doctor.

Results already obtained show that the survival rate of northern Alberta women who develop breast cancer is among the highest reported in the world. But there is still a great deal of room for improvement in the survival rate and in the method of treatment.

As the cause of breast cancer is not yet known, efforts to improve survival rates centre on earlier diagnosis and better treatment methods rather than on prevention. Malignant tumors of the breast are more successfully treated when they are small and in their earliest stage—this points to the need for earlier diagnosis.

Approximately 83 percent of all breast lumps are found by the woman accidentally or by self-examination of the breast. The researchers stress the vital importance to women of breast self-examination for early detection and for reassurance—85 percent of breast lumps are not malignant. In addition, the early diagnosis of breast cancer may also lead to the development of less radical treatment, resulting in an improved psychological attitude towards this disease.

Beside confirming the importance of breast self-examination,

the Cross Cancer Clinic research has found that, contrary to previous belief, breast feeding has no apparent effect on the incidence of breast cancer in northern Alberta. The belief that women who have never been pregnant are at a higher risk was also found to lack support. The relationships between breast cancer and other factors, such as the birth control pill and menopausal hormones, are also being analyzed.

The researchers are attempting to identify those women whose tumors suggest that their outlook is poor in order that they may be treated more aggressively earlier in the course of the disease. Work is also being done in cooperation with the immunology laboratory to search for a "serum test" which will aid in diagnosis. Attention is being given to treatment methods and diagnostic tools to improve the treatment of the malignant tumor, and thereby prevent the spread of malignancy throughout the body.

Financing for this study is being provided by the Medical Services Research Foundation of Alberta and the Alberta Heritage Trust Fund.

publications

Caldarola, C., ed. (Sociology): *Society and Politics in Alberta: Research papers*. Agincourt, Ontario: Methuen Publications, 1979.

Thomas, L.G., *The Liberal Party in Alberta, 1905-1921*.

Beke, C.F., *The United Farmers of Alberta, 1921-1935*.

Caldarola, C., *The Social Credit in Alberta, 1935-1971*.

Elton, D.K., and A.M. Goddard, *The Conservative Takeover, 1971-*

Sinclair, P.R., *Class Structure and Populism: Alberta and Saskatchewan*.

Johnson, M., *The Failure of the CCF in Alberta: An Accident of History*.

Elton, D.K., *Alberta and the Federal Government in Historical Perspective, 1905-1977*.

Norrie, K.H., *Nature and the Limits of Prairie Economic Alienation*.

Gibbins, R., *Western Alienation and the Alberta Political Culture*.

Gilsdorf, R.R., *Western Alienation, Political Alienation, and the Federal System*.

Poetschke, D.M., and R.E. McKown, *Perception of Class in Alberta*.

McKown, R.E., and H.A. Leeson, *Candidate Recruitment in Alberta*.

Tanenbaum, E., *Edmonton's Office-Seekers: A Social and Demographic Analysis*.

Skogstad, G., *Farmers and Farm Unions in the Society and Politics of Alberta*.

Sweeney, J.L., and R.E. Schneck, *Political Attitudes of Middle Business Managers in Alberta*.

Masson, J.K., and P. Blaikie, *Labour Politics in Alberta*.

Sutherland, S.L., *Student Power and Partisan Politics in Edmonton*.

Johnson, J.P., *Demographic Change in the Alberta Electorate, 1956-1975*.

Flanagan, T.E., *Ethnic Voting in Alberta Provincial Elections*.

Caldarola, C., and G.S. Paul, *Voting in Edmonton*.

Masson, J.K., *The Ebb and Flow of Municipal Party Politics in Alberta*.

Caldarola, C., *Statistical Synopsis of Federal Elections in Alberta*.

Flanagan, T.E., *Statistical Synopsis of Alberta Provincial Elections*.

Elton, D.K., *Statistical Analysis of 1971 Alberta Provincial Election*.

Wright, J.G. (Library Science):

Evaluating Materials for Children and Young Adults.

Canadian Library Journal 35, No. 6 (1978): pp. 439-441.

people

Norman Page, Professor of English, has been awarded a Guggenheim Fellowship for 1979-80. He will spend the year in England researching and writing a biography of A.E. Housman, poet and classical scholar.

James M. Parker, University Archivist received the Historical Society of Alberta's Annual Award for outstanding contri-

bution to Alberta history at the Society's annual conference, held recently in Lethbridge.

James Cummins, Modern Language Centre, Ontario Institute for Studies in Education, formerly a research associate with the Centre for the study of Mental Retardation and J.P. Das, Director, Centre for the Study of Mental Retardation, have been selected as winners of the International Reading Association's Albert J. Harris Award for 1979. This award has been granted for their article "Cognitive Processing and Reading Difficulties: A Framework for Research" which appeared in the *Alberta Journal of Educational Research*, Vol. XXIII, No. 4, December, 1977. Dr. Das will be accepting the award on 26 April in Atlanta, Georgia. Preparation of this paper was made possible by a grant to the Centre for the Study of Mental Retardation by the Edmonton Civic Employees Charitable Assistance Fund.

John Anderson of Carnegie-Mellon University, Pittsburgh, visited the Center for Advanced Study in Theoretical Psychology during the week of 19 March. He conducted a series of seminars on cognitive psychology.

Ivo Moravcik of the Department of Economics gave a talk on "Energy: A Problems for the World and Eastern Europe" on 23 March at the American University in Washington, D.C.

M.E. Steed, Associate Professor, Faculty of Nursing, was invited to present a paper entitled "Program Evaluation" at the first National Continuing Nursing Education Conference in Winnipeg which took place on 18, 19, and 20 April.

A version of Sophocles' *Antigone* by R.E. Braun, Department of Classics, was given eight performances in the Oude Libertas Amphitheatre, Stellenbosch, followed by ten performances in the Little Theatre, Cape Town, during the month of March.

David W. Hunt, Graduate Service Assistant in Philosophy, and John King-Farlow, Professor of Philosophy, presented a joint

paper to the American Academy of Religion's recent Pacific Northwest meetings at Seattle University, Washington.

coming events

Listings must reach the Editor by 9 a.m. on the Thursday prior to publication. Written Notification is necessary. Listings should be sent to 423 Athabasca Hall.

Music

Department of Music

The following student recitals will be given in Convocation Hall, free admission, on the dates stated. Persons wishing to attend are asked to contact the Department office, 432-3263, as the schedule is subject to change.

28 April, Saturday. 8 p.m. Alberta Composers Festival Chamber Concert.

29 April, Sunday. 2 p.m. Alberta Composers Festival Orchestral Concert. 8 p.m. Alberta Composers Festival Chamber Concert.

30 April, Monday. 8 p.m. Michael Massey, pianist.

1 May, Tuesday. 8 p.m. Christopher Taylor, trombone.

2 May, Wednesday. 8 p.m. Sandra Hunt, pianist, and Gary Russell, cellist.

4 May, Friday. 8 p.m. Anita Nowell, soprano, and Alexandra Munn, pianist.

5 May, Saturday. 8 p.m. Trio Dalverna will perform.

6 May, Sunday. 8 p.m. Voice students of Merla Aikman will perform.

Jubilee Auditorium

27 April. 8 p.m. White Heather Concert Party featuring Kenneth McKellar. Tickets available at Mike's.

From 30 April. Kiwanis Music

Festival. Tickets available at the door.

Classical Guitar Recital

27 April, Friday. 8 p.m. Classical Guitar Society of Edmonton presents Dale Ketcheson, guitarist. Centennial Library. Tickets available at the SU Box Office (HUB Mall), Woodward's, and the Bay.

Concert of Contemporary Music and Poetry

29 April, Sunday. 3 p.m. and 7 p.m. Intermedia Productions present "Pro-Positions," a concert of contemporary music and poetry of Beckert, Benedetto, Griffes, Lowell, and Martin, with Jerry Ozipko, violinist, and Rickman Lilienthal, flautist. Centennial Library Music Room. Tickets available at the door.

Students' Union Theatre

4, 5 May. 8:30 p.m. Students' Union Concerts present Murray McLauchlan. Tickets available at the SU Box Office (HUB Mall), Woodward's, and Mike's.

Latitude 53

6 May, Sunday. 2:30 p.m. A concert of chamber music for voice, harp, and guitar duo will be performed. For ticket information telephone 423-3126.

The Ship

The Ship, located in Lister Hall residence complex, provides nightly entertainment. For more information contact Michael Gilbert, telephone 479-0052.

26, 27 April. 9 p.m. Lionel Rault Band presents an evening of original rock 'n' roll.

28 April, Saturday. 9 p.m. The Smarties (formerly The Nerve) will perform.

Full-Day Seminars

Energy Resources Conservation Board—Technical and Environmental Seminar

3 May, Thursday. From 8:30 a.m. "Tailings Disposal Beyond Surface Mineable Limits, Athabasca

Oil Sands." The fee of \$200 includes one set of the two-volume report, *Athabasca Oil Sands Tailings Beyond Surface Mineable Limits*. The seminar will be conducted in the Third Floor Auditorium, Bow Valley Square II, 205 Fifth Avenue South West, Calgary. For information concerning registration, telephone Mrs. Carry Tays, ERCB, at Calgary 261-2373.

Drugs in Pre-Natal Life

27, 28 April. From 9 a.m. Lectures by R. Pahlaniuk, University of Manitoba; G.R. Van Petten; T. Shephard, University of Washington; S. Segal, University of British Columbia; R. Bealieu; F. Marcos; K. Wong; P. Bowen; N. Finers; D. Leen; and K. Rawlinson. The fee of \$45 includes nutrition breaks and lunches. In addition, a reception and dinner will be held at the Faculty Club on the evening of Friday, 27 April. The Auditorium of Misericordia Hospital, 16940 87 Avenue. The symposium is sponsored by units of the Misericordia Hospital and The University of Alberta. The course is approved for 10 credits for the College of Family Physicians.

Films

Cinematique 16

26, 27 April. 7:30 p.m.

J.A. Martin, *Photographe*.

29 April, Sunday. 2 p.m. *The Omen*.

3, 4 May. 7:30 p.m. *The Apprenticeship of Duddy Kravitz*. For further information, contact Cinematheque 16, telephone 437-3863.

Citadel National Film Theatre

25, 26 April. 7:30 p.m. and 9:15 p.m. *Una Giornata Particolare* (Italy/Canada, 1978).

27 April, Friday. 7:30 p.m. *Il Generale Della Rovere* (Italy, 1959). 9:50 p.m. *Umberto D* (Italy, 1954).

29 April, Sunday. 8 p.m. *Umberto D* (Italy, 1954).

2, 3 May. 7:30 and 9:15 p.m. *The Best of The Rolling Stones* (United States, 1972).

From 6 May. 7:30 p.m. *Dersu Uzala* (USSR, 1974).

Provincial Museum

29 April, Sunday. 4 p.m. and 8 p.m. *Quo Vadis* (United States, 1951).

2 May, Wednesday. 7 p.m. *Bonnie and Clyde* (United States, 1967).

6 May, Sunday. 4 p.m. and 7 p.m. *Bringing Up Baby* (United States, 1938).

Theatre

Citadel Theatre

Continuing. *A Bistro Car on the CNR* by Patrick Rose, Richard Ouzounian, Merv Campone, and D.R. Andersen.

Continuing. *Cervantes*, a play for children by Leonard Peterson.

Northern Light Theatre

From 3 May to 3 June. *Back to Beulah* by W.O. Mitchell. For ticket information and show times telephone 429-3110.

Exhibitions

Edmonton Art Gallery

To 29 April. "Recent Acquisitions '79," an exhibition of works of art purchased by or donated to the gallery in 1978.

Continuing. An exhibition of works by Jules Olitski which explores the nature and development of the "matter paintings" of this American artist.

From 27 April. An exhibition of constructed wood sculpture by Catherine Burgess.

From 27 April. An exhibition of works by Gordon Rice.

Continuing. "The Alberta Landscape," an exhibition which surveys the development of landscape painting with a particular emphasis on contemporary artists.

Latitude 53

From 26 April. An exhibition of clay works by a group of Edmonton sculptors, ceramicists, and painters. The gallery is located at 10048 101A Avenue, telephone 423-3126.

Folio accepts display advertising

Size and rates: the basic unit size is 21 agate lines x 11 picas (1½" x 1⅞"). The full page is divided into 22 such units, any combination of which is available at a cost of \$10 per unit. Half page costs \$110. One column costs \$55. A professional/business card unit is available at a cost of \$20. Discounts are offered for extended runs, please enquire.

Other specifications: half-tones (100-line screen or less) are acceptable; no colour or bleeds. Camera-ready copy is necessary; there is a charge of 20c per word for type-setting, and \$5 for adjustment of design work. Deadline for submission is one week prior to publication (Thursday, 4 p.m.). Acceptance of advertisements and positioning are at the discretion of the editor.

These rates are effective from 15 May 1979. For more information please telephone 432-2325 and ask about *Folio* display advertising, or write to:

Folio Display Advertising
Office of Community Relations
423 Athabasca Hall
The University of Alberta
Edmonton, Alberta
T6G 2E8

Provincial Museum

Continuing. "Ancient Crossroads: the Rural Population of Classical Italy," and "Villa Rustica: the Canadian Excavations," an exhibition which includes Greek and Roman ceramics and statuary, bronze and gold jewelry, coins, and other items from excavations in southern Italy.

Continuing. "Village in Transition," an exhibition which demonstrates the combination of traditional and modern influences in the Korean village of Sam Jong Dong.

Continuing. "In Mountain Light," an exhibition of photographs of the Canadian Rockies from the Byron Harmon collection 1906 to 1934.

service information

Information must reach the Editor by 9 a.m. on the Thursday prior to publication. Written notification is necessary. Notices should be sent to 423 Athabasca Hall

Notices

Bronfman Foundation Grant for Study of Mental Retardation

The Centre for the Study of Mental Retardation has received a grant of \$6,135 from the Samuel and Saidye Bronfman Family Foundation, Montreal, for research in learning disability. The proposal for this grant was prepared jointly by J.P. Das and Robert Mulcahy of Educational Psychology.

Travel Advance Requests

University travel regulations require that a Request for Travel Advance form be submitted to the Comptroller two weeks before the date of departure.

The Comptroller's Office is receiving many such requests with only one or two days notice, and in some cases only a matter of hours. Such short notice severely disrupts the orderly system of issuing cheques and, more importantly, could result in a staff member having to travel without having received an advance.

In most cases the purpose of travel is to attend a conference or meeting which has actually been planned well in advance, and so there seems to be no reason why the Request for a Travel Advance could not be made within the time frame mentioned. It would be appreciated if staff members could file the Request for Travel form with the two weeks notice required by regulations.

Aspen Languages

Aspen Languages School of Paris offers French and Italian classes for adults. A class in French literature is also planned which will include study of Voltaire, Gide, Camus, and Anouilh. For further information telephone 435-4467.

Non-Credit Courses

Interpreting the Woods and Fields
Beginning: 28 April. *Duration:* Two days. *Location:* John Jantzen Nat'l Centre. *Fee:* \$18. *Telephone:* 432-5044 or 432-3116

Should I Buy This House?

Beginning: 2 May. *Duration:* Five Wednesday evenings from 7:30 p.m. to 9:30 p.m. *Fee:* \$25 per person and \$35 per couple. *Telephone:* 432-5067.

Explorations In Management.

Beginning: 17 May. *Duration:* One day. *Fee:* \$75. *Telephone:* 432-5067 or 432-5066.

Surplus Equipment

The equipment listed below has been declared surplus. For further information about the purchase of this equipment or the disposal of any of your department's surplus equipment, consult Bonnie O'Dwyer or Roy Bennet, telephone 432-3208.

One Tektronix 190 B Signal Generator
One E-H Research 240 Picoammeter
One Tektronix 1121 Amplifier
One Tektronix 132 plug-in power supply
For further information contact
R.J. Gardner, telephone 432-4301.
35 mm slide carrying case—holds 150 glass mounted slides.
For further information contact
Carol Crawford, telephone 432-4640.

Positions Vacant

On-Campus

Food Services Officer

A challenging opportunity exists for a results-oriented individual with proven expertise in food service management. This is a new position with The University of Alberta's large and complex student services operation.

The incumbent will be responsible to the Director of Housing and Food

Services for the efficient operation of three large cafeterias, fifteen lunch-room/cafeterias, subcontracted vending operations, and for the development and control of a four million dollar operating budget. Three Food Services Managers and a Procurement Coordinator report to the Food Service Officer. The position liaises very closely with Conferences and Catering and with Accounting as all outlets operate on a cash basis, with a new Scrip program being introduced this fall.

Qualified applicants should have a minimum of three years experience at a senior level in a food service operation. A degree in Food Service Administration would be a distinct advantage.

Please submit a comprehensive résumé, including salary expectations to: The Personnel Officer, Housing and Food Services, The University of Alberta, 44 Lister Hall, Edmonton, Alberta T6G 2H6.

Non-Academic Positions

To obtain further information on the following positions, please contact Personnel Services and Staff Relations, third floor, SUB, telephone 432-5201. Please do not contact the department directly. Positions available as of 20 April.

Library Clerk I (\$695-\$772)—Extension Library
Cashier (\$695-\$803)—Bookstore
Clerk Typist II (\$695-\$803)—Provincial Laboratory
Financial Records Clerk (\$695-\$830)—Office of the Comptroller
Clerk Steno II (\$695-\$830)—Pharmacology; Office of the Comptroller; Athletic Services
Timetable Scheduling Clerk (\$748-\$895)—Office of the Registrar
Clerk Typist III (\$748-\$895)—Rehabilitation Medicine; Soil Science; Medical Bacteriology
Senior Clerk (\$748-\$895)—Office of the Registrar
Data Entry Operator I (\$772-\$929)—Rural Economy
Clerk Steno III (\$772-\$929)—Sociology (two positions); Rural Economy; Administrative Services; Education
Clinical Services; Physics; Psychology; Mineral Engineering; Law; Secretariat; Extension; Faculté Saint-Jean
Clerk Steno III (\$772-\$929, term)—Education/Field Services
Senior Financial Records Clerk (\$772-\$929)—Office of the Comptroller
Admission Records Trainee (\$803-\$969)—Office of the Registrar (three positions)
Library Assistant I (\$803-\$969)—Extension Library
Medical Steno (\$830-\$1,009)—Psychiatry; Medicine
Secretary (\$863-\$1,053)—Occupational Therapy; Physical Plant; Senate; Immunology; Nursing; Dentistry
Departmental Secretary (\$969-\$1,192, term, trust)—Physics
Senior Accounts Clerk (\$1,009-\$1,243)—Office of the Comptroller
Computer Assistant I (\$695-\$830)—Computing Services (four positions)

Laboratory Assistant II (\$721-\$863)—Provincial Laboratory (two positions)
 Building Service Worker II (\$803-\$969)—Housing and Food Services
 Animal Assistant II/Animal Technician I (\$803-\$1,096, trust)—Health Sciences Small Animal Program
 Technical Assistant (\$830-\$1,009)—Pharmacology
 Biochemistry Technician I (\$895-\$1,096, trust)—Biochemistry
 Chemical Technician I (\$895-\$1,096, trust)—Animal Science
 Graphics Technician I/II (\$895-\$1,243)—Technical Services (Graphics)
 Electron Microscope Technician I/II (\$895-\$1,243, trust)—Anatomy
 Electronics Technician I (\$929-\$1,143, trust)—Physics (two positions)
 Assistant Buyer (\$969-\$1,192)—Purchasing
 Security Officer I (\$1,009-\$1,243)—Campus Security (two positions)
 Technologist I (Bio-Sciences) (\$1,009-\$1,243, trust)—Immunology
 Technologist I/Technician II (\$1,009-\$1,243, trust)—Oral Biology
 Technologist I/II (\$1,009-\$1,415, trust, term)—Pharmacology
 Technologist I/II (\$1,009-\$1,415)—Radiation Research Committee
 Bacteriology Technologist I/II (\$505-\$708, trust, half-time)—Medical Bacteriology
 Technologist I/II (\$1,009-\$1,415, trust, term)—Oral Biology
 Instrument Technician II (\$1,053-\$1,298)—Chemical Engineering
 Animal Technician II (\$1,053-\$1,298)—Health Sciences Large Animal Program
 Electronics Technician II/III (\$1,053-\$1,476)—Technical Services; Physics
 Audio Visual Technician III (\$1,143-\$1,415)—Physical Education and Recreation
 Office Equipment Repair Technician III (\$1,143-\$1,415)—Technical Services
 Biochemistry Technician III (\$1,143-\$1,415, trust)—Biochemistry
 Machinist Technician II/III (\$1,143-\$1,611)—Technical Services
 Technologist II/III (Agriculture) (\$1,143-\$1,611, trust)—Plant Science
 Programmer/Analyst II/III (\$1,192-\$1,759)—Office of Administrative Systems
 Assistant to the Director (Excluded Position) (\$1,212-\$1,500)—Personnel Services and Staff Relations
 Technologist III (BAG, trust, term) (\$1,298-\$1,611)—Plant Science
 Technologist III (BSc General) (\$1,298-\$1,611)—Animal Science
 Technician IV (Farm Equipment) (\$1,298-\$1,611)—Plant Science
 Specialist Technician (\$1,611-\$2,010, trust)—Physics
 Programmer/Analyst IV (\$1,682-\$2,104)—Computing Services

The following is a list of currently available positions in the University of Alberta Libraries. The bulletin board in the Cameron Library, Room 512, should be consulted for further information as to availability and position requirements.

Duplicating Operator II (\$748-\$895)—Administration

Library Clerk II (\$748-\$895)—Inter-Library Loans

Off-Campus

The following is a list of positions available in the Office of the Registrar at Athabasca University. To obtain further information please contact Personnel Services at 454-3357.

Examinations Clerk (\$825-\$1,026)
 Examinations Clerk, Jr. (\$759-\$939)
 Student Records Clerk (\$759-\$939)

Advertisements

All advertisements must be received by 4:30 p.m. on the Thursday prior to publication. The cost is 15 cents per word for the first week and 5 cents per word for subsequent weeks ordered before the next deadline. Advertisements must be paid for in advance, and are accepted at the discretion of the Editor. We regret that no advertisements can be taken over the telephone. For order forms or further information, telephone 432-2325.

(Please note that effective 15 May the cost for classified advertisements in *Folio* will be raised to 20 cents per word for the first week and 10 cents per word for subsequent weeks ordered before the next deadline.)

Accommodations available

Professional required to lease new office space at Abbotsfield Shoppers Mall 118 Ave. and 34 St. Reasonable rates. Call Brian at 477-9121.

For sale—three adjacent second row lake lots. Baptiste Lake (White Gull Beach) well treed, private, great for year round enjoyment. \$11,500 per lot. Phone 525-2287 or write Box 99, Grassland, Alberta.

For sale—View property! Exquisite custom built home on 95 by 120 lot, with back yard to south. Dream Poggenpohl kitchen, white wool carpeting, tremendous walls for art collections, lighting security system, quiet ravine location. Over \$250,000. Call Deanna Larson at Spencer Real Estate. Res. 481-0936, bus. 436-5250.

For sale—Blue Quill condominium, 20 minutes from University, one year old, three bedrooms, 1½ bathrooms, carpet throughout. \$56,500 by owner, no agents, day 432-5285, night 436-5982.

For rent—Blue Quill. Executive three bedroom bungalow. Family room, fireplace, five appliances, two bathrooms. 1 May. \$650 monthly. 988-5136 after 6 p.m.

For rent—Bachelor suites for 1 May. Concord Tower. 11147 82 Ave. Phone 433-1676 for appointment.

For sale—Three bedroom with 1½ bathrooms. Near school, bus. All carpeted, two appliances. Very low down payment. Excellent condition. 462-0655, 462-2901.

Room and Board—Available immediately for two females, (students or

staff). Private rooms, laundry, parking. 10 minute bus to University. 436-0290.

For sale—Southside crescent location. 1,900 sq. ft., four level split. Double front drive, garage, spacious panelled foyer with adjacent den. Bay window eating area in kitchen. Large fenced back yard. Paved lane. Ermineksin. Price \$129,900. Call Faye Lund. Block Bros. 436-4240, 436-5355.

For rent—Available 1 May. Two bedroom apartment. Choice location in Belgravia. Lovely older apartment. \$360 monthly. New fridge and stove. 466-3917.

For rent—Bachelor and two bedroom suite (Bonnie Doon) May through August. Furnished. \$100 and \$175 per month. Phone 998-6317 or 998-3275.

For sale—By owner. Duggan. 109 St. 35 Ave. 1,584 sq. ft., three bedroom bungalow, sunken family room with fireplace and patio doors, attached garage, two full baths, fenced and landscaped. Close to schools and University. Call 434-2236.

For sale—Inglewood. This stately two storey home boasts formal living and dining rooms—lavished with solid oak. The mature landscaping is best appreciated from the privacy of the screened in porch and raised deck off the breakfast room. Tom Jobb. 436-4751. 426-5880 pager #995. Buxton Real Estate Ltd.

For sale—By owner. 1,260 sq. ft., three bedroom townhouse. Features 1½ bathrooms, full basement, patio doors off living room and excellent south side location. Call Linda 425-8517.

For rent—Small unfurnished bungalow with character. Excellent condition. Mill Creek Ravine area. Ideal for couple. Phone 432-0683 evenings after 16 April.

Christian family has apartment for rent in private home. Three large rooms, fireplace, kitchenette, shower, and two piece bathroom; separate entrance. Riverbend area. Available 1 June. 434-6022.

For sale—Spacious, Aspen Garden bungalow, fantastic decor, private master bedroom with its own three piece bath, two fireplaces, open family room plus fourth bedroom down. Call Liz Crockford. 434-0555. 436-5250 Spencer Real Estate.

For sale—Executive view. Two storey, large lot, formal separate living and dining rooms, three fireplaces, professionally landscaped. Call Liz Crockford. 434-0555. 436-5250. Spencer Real Estate.

For sale—By owner. Belgravia. Sunny custom built bungalow on large lot in exclusive area. Many quality features, including fieldstone fireplace; heated double garage; secluded back yard with mature trees; with large kitchen, living room and dining room; fully developed basement with large rumpus room and wet bar. 7104 116 Street. Asking \$106,000. Phone Doug McLean 435-1207, 432-5291.

For sale—Older two storey home on

five acres, amidst mature trees, garage, garden shed. 28 miles south-east off highway 14. \$55,000. 466-4461. 922-4121.

For rent—Two bedroom house with garage on Saskatchewan Drive. \$475. 436-9199.

For sale—In Old Strathcona, renovated 2½ storey; 2,060 sq. ft., solid brick home on double lot, 12 rooms, three full bathrooms, double garage. \$179,000. 439-9361.

For sale—At last! A four bedroom home designed to meet your family's needs as well as your entertaining needs. The ideal kitchen features custom cabinets with roll out shelves and ample storage. Located in Ermineskin with easy access to University and downtown. Regina Machinski. Spencer Real Estate. Phone 436-5250 bus. 465-5163 res.

For sale—Belgravia. By original owners. Three bedroom bungalow. Double attached garage. Patio. Custom finished basement. Mature trees. 78810 116 Street. \$125,000. No agents. 436-4412.

For rent—Garneau. 83 Ave. 111 St. Three bedroom, two storey house, finished basement, appliances, furnished. June 1979 - August 1980. 432-1150, 432-5737.

For sale—Walk to U of A from this delightful bungalow located on a tree lined street close to all amenities. Recently remodelled, new kitchen, bath, two bedrooms. Extra bedroom and playroom down. Garage. Call Peter 439-7371 or 435-1878. Kellough Realty.

For rent—Windsor Park. Share large 2,400 sq. ft. house with three person family. Fully furnished, comfortable and private. 1 May - 31 August. \$250. 428-0494.

For rent—Furnished self contained suite. Apply personally 1 and 2 May. Basement, bright, large bedsitting room, small kitchenette, three piece bath, shower. Price reasonable, some gardening. References. One person (postgraduate, staff) 8727 118 St.

For sale—By owner. Petrolia. Bungalow. 1,482 sq. ft., 4 years old, three bedrooms, family room, fireplace, modern kitchen, patio, garage, door opener. Close to schools, buses, stores. University 15 minutes. Golf, skiing ½ block. Quiet street. No agents. \$116,500. Offers. Phone 435-5603.

For rent—Two blocks south of W.W. Cross, fully furnished, 1,600 sq. ft., three bedroom bungalow. Three bathrooms, new kitchen, double garage. Available for one year from 1 August. Rent \$650 monthly. 436-3770.

For sale—University area. Attractive two bedroom bungalow, double garage, good condition. \$65,000. Large mortgage. Rita Butt. Potter Realty. Res. 435-7629, bus. 436-3050.

For sale—Belgravia. Three bedroom bungalow. Main floor family room plus fully developed basement. Mature landscaping. Quiet location. \$113,700. Rita Butt. Potter Realty. Res. 435-7629, bus. 436-3050.

For sale—Grandview. Large custom three bedroom bungalow, plus den. Unusual rumpus room, large treed lot, double garage, two full baths. \$139,700. Rita Butt. Res. 435-7629, bus. 436-3050. Potter Realty.

For rent—Room in co-op house. \$120 monthly. North Garneau. 439-3619.

For rent—2 July - 18 August. Large luxury home. Short direct route, University. \$850 (includes utilities) 436-1285.

For rent—Fully furnished three bedroom home in Greenfield. 1,950 sq. ft., fireplace, large treed lot, direct bus to University. Available for one year from 1 August. Rent \$550. 432-2447, 436-3386.

For sale—Open beam bungalow. Riverbend. Approximately 1,600 sq. ft. Main floor family room, corner brick fireplace. Professionally developed lower level with recreation room, pool room, sauna, two bedrooms, laundry room. Double garage, concrete drive off paved lane. This is a nice one! Call Faye Lund. 436-5355, 436-4240 Block Bros. Real Estate.

For sale—Small bungalow. A little jewel in Windsor Park, one block off campus. Available 1 September. 439-1880 evenings.

Fully carpeted new four bedroom. Front drive garage. Southside. 432-7971.

For sale—By owner. Millwoods. New lovely four split, 1,685 sq. ft., carpeted throughout. Basement 80% completed. Cedar siding, large lot, \$77,900 firm. 462-7380, 3 - 8 p.m.

For sale—Dinner parties will be a delight in this 1½ foot long dining room. Custom built two-storey home with fantastic built-ins in large children's bedrooms. Well located in Blue Quill Phase I within walking distance of Derrick Golf Club. \$169,900. Call Deanna Larson res. 481-0936 or bus. 436-5250. Spencer Real Estate.

Large main floor suite. Two bedroom and den, completely furnished including washer, dryer, stereo. Interior wood finish. Garage. 99 St. and

84 Ave. 1 June. 432-0510. \$550.

For sale—By owner. Allendale. Ten minutes to University. Two bedroom bungalow with fully developed basement, in good condition. \$69,500. Phone 436-3975. No agents.

Attention parents of students in residence. Consider purchasing condominium for your offspring enrolled in University. Thereafter use as investment property or retirement. I have ideal properties both sides of the river. Call Pat von Borstel. Spencer Real Estate. Bus. 436-5250, res. 437-6540.

Accommodations wanted

Wish to rent—University of Saskatchewan Faculty member requires unfurnished or semi-furnished three bedroom bungalow with back yard and easy access to the University via foot or bus. Will rent for one or two years, commencing sometime in July or August, 1979. Please write to: R.M.K. Wagner, Extension Division, University of Saskatchewan, Saskatoon, Saskatchewan. S7N 0W0.

Wanted to rent—Furnished three bedroom house walking distance to University. September 1979 - May 1980. 433-2143.

Wanted to buy—By University family, three bedroom home, preferably in Belgravia. 452-0814, 432-5422.

Wanted to rent—Three- four-bedroom, furnished house from 1 July. 432-5692, 429-2226.

Mature couple with mature cat looking for unfurnished two bedroom or spacious one bedroom suite to rent or sublet. June through August. 433-2047.

Automobiles and accessories

1972 Ventura II Pontiac, 45,000 miles, excellent condition. \$1,400 or offers. Call Richard 432-2669 bus., 432-7950 after 6 p.m.

For sale—1972 Olds 88 Royale. Original owner, excellent condition, new paint. 69,400 miles. \$2,500. Bought new car. Bruce 434-5910.

Leaving Canada must sell car. Renault

1973, 70,000 miles. Standard station wagon. Good condition. Best offer. Call Jean 432-5471 bus. 433-7256 res.

For sale—Argosy (Airstream) trailer, 28 ft., center bath. Zip-Dee-Awning, stereo AM/FM 8 track and cassette, vista-view windows. Cut towing costs with aerodynamic design. 14719 58 Ave. 435-9116 after 6 p.m. Weekends anytime.

For sale—Landrover Dormobile camper, 109, 6 cyl., hubs, OD. Used, not abused. Evenings, weekends 433-4509.

Goods and services

Experienced typist. Variety of type styles, symbols. Quality work. 435-4407; 435-5006.

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Edmonton YMCA Chito-Ryu Karate Club. Phone 455-2139.

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Dressmaking, alterations, bridesmaids, bridal gowns. 462-0402 after 2 p.m.

Donnic Typing Services Ltd.—We have Word Processing Equipment. Eliminates re-proofing correct text. Ideal for theses, manuscripts, tables, etc. 2nd floor, 10444 Whyte Ave. 432-1419.

Custom dressmaking and designing, European trained, no patterns needed. Call Jacqueline 433-4870.

Original design, size 11 wedding dress. A long train, frilled sleeves and hem. The original cost \$180, your offer. 434-5968.

Interested in having your garden tilled in time for seeding or having your lawn hand raked, hedges cut or trimmed. Call 439-3531. Plan ahead.

Experienced interior painter. 988-8549 evenings.

Electric piano for sale. Full 88 notes. Stereo outputs and headphones. Unfinished cabinet but beautiful sound. \$1,200. 436-1879 after 5 p.m.

Custom cabinets, carpentry work, general repairs, renovations. Mike Dawson. 454-1214 days, 451-1646 evenings.

Need someone to water your plants while on holidays? Also shall transplant and prune. Home business greenhouse. Call the plant sitter. 488-1496.

Quality custom furniture, cabinets, shelving. 988-8549 evenings.

French lessons—Reasonable rates, adult and children. Phone Mrs. Finotti. 466-7960.

Queen size bed, Sears best sewing machine, dinette set, child's white dresser, coffee table, teak standing lamp, crib, bassinette. All in excellent condition. 437-7945.

(Semi or Retired) Interested being with children. Ages are 4 to 5 years of age. 2 boys. Call 439-3531.

Experienced cello teacher. 433-3087, mornings.

Clara's Steno Services—Prompt, reliable, quality workmanship. Specializing in résumés, theses, correspondence, reports, dictaphone, transcription. Special rates for students with ID. 436-0290.

Good Neighbor Fence Company. Quality wood fences, patio decks, odd jobs. Free estimates. 439-1211, 433-6794.

Care needed for one year old boy, weekdays, near University. Non-smoking mother with similar aged child preferred. 488-5559 evenings.

Wanted: Electric stove and push mower in good condition. 488-5559 evenings.

For sale—30" white gas range. Excellent condition. \$175. 439-1844 mornings.

French girl 22 would do househelp or motherhelp for 6 to 12 months. Beginning July or November. 437-1020.

For sale—Celebrity 12 portable electric typewriter and case. Excellent condition. \$200. "El-Degas" flat top guitar and case. Mint condition. \$200. 432-5082, 436-2232.

For sale—Four piece wicker set. Like new. \$200. 439-1092.

Aspen Languages School of Paris offers French and Italian classes at all levels and French literature class. Phone 435-4467.

The Serendipity Shop, for interesting finds. Pottery, hand quilted items, silk scarves, small antiques, original paintings, etc., and if you have a picture to frame, bring it in—our prices are competitive. 9860 90 Ave. Phone 433-0388. Closed Mondays. Hours 10 - 5 p.m.

Keep-fit yoga: Tuesday evenings at University. Starts May 29. Fee for professional instructions only. Registration May 15 at 5 p.m., room 9, Tory Building. For preregistration or information write early to Box 184 University Post Office, giving your address.

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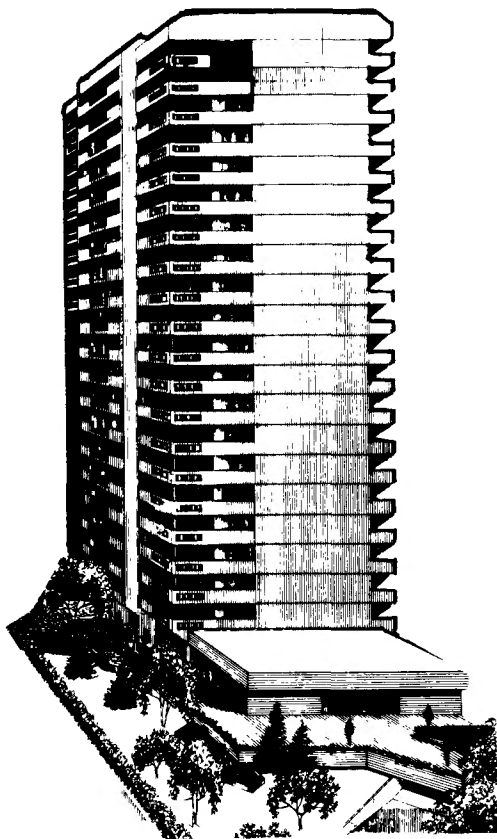
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